

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of the claims in the application:

1 1. (Currently Amended) An integrated circuit, comprising:  
2 a lead frame having a plurality of leads, each one of the leads having a respective length;  
3 a current conductor portion comprising a coupling of at least two of the plurality of leads;  
4 a substrate having first and second opposing surfaces, the first surface proximate to said  
5 current conductor portion and the second surface distal from said current conductor portion;  
6 ~~wherein said substrate is disposed having the first surface of said substrate above said current~~  
7 ~~conductor portion and the second surface above the first surface when the leads are in electrical~~  
8 ~~contact with an uppermost surface of a circuit board; and~~  
9 one or more magnetic field transducers disposed on the first surface of said substrate,  
10 wherein each one of the leads has a bend in a direction selected to result in each one of the leads  
11 being closer to the first surface of the substrate than to the second surface of the substrate  
12 throughout the length of the lead.

1 2. (Cancelled)

1 3. (Cancelled)

1 4. (Withdrawn) The integrated circuit of Claim 1, wherein said current conductor portion  
2 further comprises a conductive clip coupled to the at least two of the plurality of leads.

1 5. (Withdrawn) The integrated circuit of Claim 4, wherein said substrate is disposed having the  
2 first surface of said substrate above said conductive clip and the second surface of said substrate  
3 above the first surface.

1 6. (Withdrawn) The integrated circuit of Claim 4, wherein said substrate is disposed having the  
2 first surface of said substrate below said conductive clip and the second surface below the first  
3 surface.

1 7. (Withdrawn) The integrated circuit of Claim 4, wherein a thickness of the conductive clip is  
2 selected in accordance with a current passing through the conductive clip.

1 8. (Withdrawn) The integrated circuit of Claim 1, wherein said substrate has at least one  
2 bonding pad coupled to a corresponding one of the plurality of leads with a bond wire.

1 9. (Currently Amended) The integrated circuit of Claim 1, wherein said substrate is ~~associated-~~  
2 coupled to said lead frame with a selected one of a solder ball, a gold bump, a eutectic and high  
3 lead solder bump, a no-lead solder bump, a gold stud bump, a polymeric conductive bump, an  
4 anisotropic conductive paste, orand a conductive film coupled to a corresponding one of the  
5 plurality of leads.

1 10. (Original) The integrated circuit of Claim 1, wherein the current conductor portion has a  
2 current conductor portion axis and at least two of said one or more magnetic field transducers are  
3 disposed on opposite sides of the current conductor portion axis.

1 11. (Original) The integrated circuit of Claim 1, wherein at least two of said one or more  
2 magnetic field transducers are rotated relative to each other for providing predetermined voltage  
3 output polarities.

1 12. (Original) The integrated circuit of Claim 1, wherein at least a portion of said current  
2 conductor portion has a T-shaped cross section.

1 13. (Original) The integrated circuit of Claim 1, wherein at least a portion of said current  
2 conductor portion has a rectangular cross section having a minimum dimension less than a  
3 thickness of said lead frame.

1 14. (Original) The integrated circuit of Claim 1, further comprising at least one amplifier  
2 disposed on said substrate.

1 15. (Original) The integrated circuit of Claim 14, wherein the at least one amplifier provides an  
2 output signal proportional to a sum of signals generated by at least two of said one or more  
3 magnetic field transducers.

1 16. (Original) The integrated circuit of Claim 14, wherein the at least one amplifier forms a  
2 summing arrangement coupled to four of said one or more magnetic field transducers.

1 17. (Original) The integrated circuit of Claim 1, further comprising a flux concentrator disposed  
2 proximate said one or more magnetic field transducers.

1 18. (Original) The integrated circuit of Claim 1, further comprising a flux concentrating layer  
2 disposed proximate the second surface of said substrate.

1 19. (Withdrawn) A method of manufacturing an integrated circuit, comprising:  
2 providing a lead frame having a plurality of leads of which at least two are coupled  
3 together to form a current conductor portion; and  
4 etching the current conductor portion to provide the current conductor portion with a  
5 cross section having a predetermined shape selected to provide an increased flux density.

1 20. (Withdrawn) The method of Claim 19, wherein the predetermined shape comprises a T  
2 shape.

1 21. (Withdrawn) The method of Claim 19, wherein the predetermined shape comprises a  
2 rectangular shape having a minimum dimension less than a thickness of said lead frame.

1 22. (Withdrawn) The method of Claim 19, further comprising:  
2 mounting a substrate proximate said lead frame, the substrate having a first surface  
3 proximate to the current conductor portion and a second opposing surface disposed distal from

4 the current conductor portion, wherein one or more magnetic field transducers are disposed on  
5 the first surface of the substrate.

1 23. (Withdrawn) The method of Claim 22, wherein the predetermined shape comprises a T  
2 shape.

1 24. (Withdrawn) The method of Claim 22, wherein the predetermined shape comprises a  
2 rectangular shape having a minimum dimension less than a thickness of said lead frame.

1 25. (Previously Presented) An integrated circuit, comprising:  
2 a lead frame having a plurality of leads;  
3 a current conductor portion comprising a coupling of at least two of the plurality of leads,  
4 at least a portion of the current conductor portion having a cross section with a predetermined  
5 shape selected to provide an increased flux density;  
6 a substrate having first and second opposing surfaces, the first surface proximate to said  
7 current conductor portion and the second surface distal from said current conductor portion; and  
8 one or more magnetic field transducers disposed on the first surface of said substrate.

1 26. (Previously Presented) The integrated circuit of Claim 25, wherein the cross section is  
2 generally T-shaped.

1 27. (Previously Presented) The integrated circuit of Claim 25, wherein the cross section is  
2 generally rectangular having a smallest dimension less than a thickness of said lead frame.

1 28. (Currently Amended) The integrated circuit of Claim 25, wherein each one of the leads  
2 has a bend in a direction selected to result in each one of the leads being closer to the first surface  
3 of the substrate than to the second surface of the substrate throughout a length of the  
4 lead, wherein said substrate is disposed having the first surface of said substrate above said  
5 current conductor portion and the second surface above the first surface when the leads are in  
6 electrical contact with an uppermost surface of a circuit board.

1 29. (Previously Presented) An integrated circuit, comprising:  
2 a lead frame having a plurality of leads;  
3 a current conductor portion comprising a coupling of at least two of the plurality of leads,  
4 wherein the current conductor portion comprises a loop having an inner dimension;  
5 a substrate having first and second opposing surfaces, the first surface proximate to said  
6 current conductor portion and the second surface distal from said current conductor portion; and  
7 one or more magnetic field transducers disposed on the first surface of said substrate.

1 30. (Previously Presented) The integrated circuit of Claim 29, wherein at least one of the one  
2 or more magnetic field transducers is disposed within the inner dimension.

1 31. (Previously Presented) The integrated circuit of Claim 29, wherein at least a portion of  
2 said current conductor portion has a generally T-shaped cross section.

1 32. (Previously Presented) The integrated circuit of Claim 29, wherein at least a portion of  
2 said current conductor portion has a generally rectangular cross section having a smallest  
3 dimension less than a thickness of said lead frame.

1 33. (Currently Amended) The integrated circuit of Claim 29, wherein each one of the leads  
2 has a bend in a direction selected to result in each one of the leads being closer to the first surface  
3 of the substrate than to the second surface of the substrate throughout a length of the  
4 lead, wherein said substrate is disposed having the first surface of said substrate above said  
5 current conductor portion and the second surface above the first surface when the leads are in  
6 electrical contact with an uppermost surface of a circuit board.

1 34. (Withdrawn) A method of manufacturing an integrated circuit, comprising:  
2 providing a lead frame having a plurality of leads of which at least two are coupled  
3 together to form a current conductor portion;  
4 providing a substrate having first and second opposing surfaces and at least one bonding  
5 pad disposed on the first surface;

6           providing one or more magnetic field transducers disposed on the first surface of the  
7   substrate; and  
8           mounting the substrate to the lead frame so that the first surface of said substrate is above  
9   said current conductor portion and the second surface is above the first surface when the leads  
10   are in electrical contact with an uppermost surface of a circuit board, wherein the one or more  
11   magnetic field transducers are proximate to the current conductor portion.

1   35. (Withdrawn)     The method of Claim 34, wherein said mounting comprises coupling the at  
2   least one bonding pad to a corresponding one of the plurality of leads with a selected one of a  
3   solder ball, a gold bump, a eutectic and high lead solder bump, a no-lead solder bump, a gold  
4   stud bump, a polymeric conductive bump, an anisotropic conductive paste, and a conductive  
5   film.